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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,724	07/10/2003	Tai Min	HT98-024/025CB	2618

7590 09/27/2004

George O. Saile
28 Davis Avenue
Poughkeepsie, NY 12603

EXAMINER

WATKO, JULIE ANNE

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/616,724	Applicant(s) MIN ET AL.	
	Examiner Julie Anne Watko	Art Unit 2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 45-60 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 45-48 and 51-54 is/are allowed.
- 6) ☒ Claim(s) 1-6, 49, 50 and 55-60 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/10/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/14/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-6, 49-50 and 55-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation “composed of” in line 3. It is unclear whether this limitation implies closed language or open language.

Claim 1 recites the limitation “patterned underlayers formed directly over the buffer layer including layers selected from the group consisting of a first group consisting of a lower antiferromagnetic layer stacked with a ferromagnetic layer and a second group consisting of a chromium layer stacked with a permanent magnetic layer plus an optional conductor layer” in lines 5-8. It is unclear whether the conductor layer is an option for the first group. Furthermore, it is unclear in what sense the closed language “consisting of” is appropriate for describing patterned underlayers comprising optional layers. For example, it is unclear whether a patterned underlayer comprising an antiferromagnetic layer stacked with a ferromagnetic layer and a conductor layer is readable on the claim.

Claim 6 recites the limitation “a conductor” in line 1. It is unclear whether this limitation refers to the “conductor layer” of claim 1, line 8, or to the “conductors” of claim 1, line 17, or to some additional conductor.

Claims 49-50 recite the limitation “a conductor” in line 1. The claim is indefinite insofar as neither structural nor functional connection is recited between the “conductor” and the device of the parent claim.

Claims 55-56 recite the limitation “a conductor” in line 1. See rejection above for claims 49-50.

Claim 57 recites the limitation “the surface of the upper antiferromagnetic layer” in line 15. There is insufficient antecedent basis for this limitation in the claims. It is unclear which surface (e.g. an upper surface, a lower surface or an end surface) is meant by this limitation.

Claim 57 recites the limitation “patterned underlayers formed directly over the buffer layer” in line 5. Claim 57 recites the limitation “conductors formed ... between the buffer layer and the patterned underlayers” in lines 15-16. It is unclear in what sense a patterned underlayer is “directly over” the buffer layer when it is separated from said buffer layer by conductors. Furthermore, it is unclear whether the “conductors” of claim 57, line 15, refer to the “conductor layer” of claim 57, lines 5-6, or to additional conductors.

Regarding claim 58: See rejections above for claim 57.

Regarding claim 59: See rejections above for claim 57.

Regarding claim 60: See rejections above for claim 57.

Other rejected claims are indefinite by virtue of their dependency from rejected claims.

Double Patenting

3. Applicant is advised that should claim 57 be found allowable, claim 59 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. Applicant is advised that should claim 58 be found allowable, claim 60 will be objected to under 37 CFR 1.75 as being a

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substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Allowable Subject Matter

4. Claims 45-48 and 51-54 are allowed.
5. Claims 1-6, 49-50 and 55-60 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
6. Reasons for allowance will be stated at such time as the scope of the claims becomes clear and definite.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fukuzawa et al (US Pat. No. 6111722) show Ta buffer layer 31 formed over patterned underlayer 20 (see col. 7, lines 3-26; see especially col. 13, lines 64-65, "a stacked film of Cr (5 nm)/CoPt (45 nm) structure for the hard magnetic biasing films is produced"), wherein the Ta buffer layer 31 is also formed on an upper surface of gap layer 13 (see Fig. 15, for example). Ito et al (US Pat. No. 6493197 B2) claims priority to a PCT filed before Nov. 29, 2000.

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8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (703) 305-7742. The examiner can normally be reached on Tues, Thurs and Fri 10AM-10PM, alternate Saturdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Julie Anne Watko
Primary Examiner
Art Unit 2652

September 23, 2004
JAW

